

Mountain Quail

Oreortyx pictus

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GENERAL RANGE AND WASHINGTON DISTRIBUTION

The mountain quail ranges from southwestern British Columbia, through Washington and central Idaho south to the mountainous regions of California, Nevada, and Baja California (American Ornithologists' Union 1983).

Mountain quail have been introduced into Alabama, British Columbia, Colorado, Hawaii, Idaho, Montana, Nebraska, Nevada, and Oregon (Heekin 1991). Mountain quail also have been introduced into Washington; however, along the Columbia and Snake rivers there are scattered populations that may be extensions of Oregon flocks (see Figure 1).

The healthiest populations of mountain quail in western Washington appear in Kitsap County (B. Tweit, personal communication). Localized populations also persist in logged areas of Grays Harbor, Thurston, and Mason counties (G. Shirato, personal communication). Incidental sightings have been reported on Fort Lewis, Pierce County (J. Stevenson, personal communication) and in Cowlitz, Jefferson, King, Lewis, Pacific, Pierce, Snohomish, Asotin, Columbia, Garfield, Kittitas, and Klickitat counties (Brennan 1989; Kessler 1990; B. Tweit, personal communication; G. Shirato, personal communication). Scattered sightings have also been reported along the southern portion of Hood Canal and in Skamania County (Hunn and Mattocks 1980), as well as in western Yakima County (L. Stream, personal communication). Many of the localized sightings are thought to be the result of captive flocks being released by hobbyists.

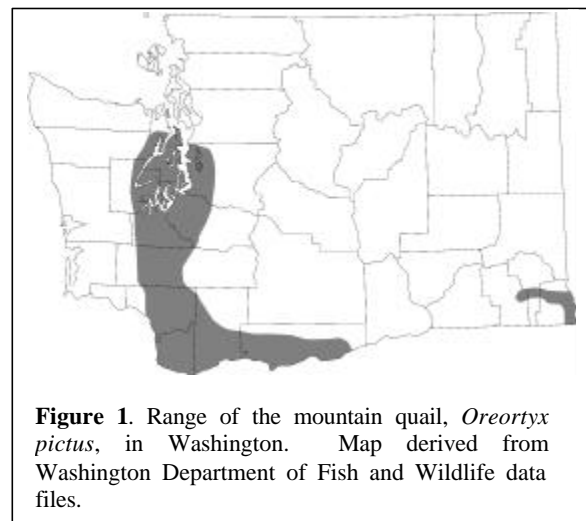


Figure 1. Range of the mountain quail, *Oreortyx pictus*, in Washington. Map derived from Washington Department of Fish and Wildlife data files.

RATIONALE

Mountain quail are uncommon game birds that are at the edge of their range in Washington. Eastern Washington populations are thought to have declined in recent years largely from declining habitat quality. Because of their secretive nature and reliance on brushy habitats that are usually associated with riparian zones, they are not capable of extensive movements away from suitable patches of habitat. Once these habitats are degraded or removed, mountain quail become isolated from other habitat that may be available.

HABITAT REQUIREMENTS

Mountain quail are associated with mixed evergreen-deciduous forests, regenerating clearcuts, forest and meadow edges, chaparral slopes, shrub-steppe, and mixed forest/shrub areas, characteristically in overgrown brushy areas (Johnsgard 1973, American Ornithologists' Union 1983, Brennan 1989, Crawford 1989, Kessler 1990). Tall, dense cover is a requirement for the majority of activities throughout the year (Johnsgard 1973, Gutiérrez 1975) and mountain quail are seldom found far from this cover (Brennan 1993).

In western Washington, mountain quail may be found at sea level in areas cleared for development that contain stands of Scotch broom (*Cytisus scoparius*) and madrone (*Arbutus* spp.) (G. Shirato, personal communication). In arid regions, such as in southeastern Washington, typical habitat consists of deciduous shrub thickets below talus and cliffs, and alder (*Alnus* spp.) thickets along streams (Yocom and Harris 1953, Brennan et al. 1987). In such arid settings, free-flowing water is essential (Ormiston 1966, Leopold 1972, Gutierrez 1975) and mountain quail are often found in close proximity to both water and escape cover (Brennan et al. 1987). Mountain quail commonly inhabit slopes of 20-60% (Miller 1950, Gutiérrez 1980) and have been observed using slopes of 60-110% (P. Heekin, personal communication).

Nesting

In spring, mountain quail seek brush, hardwood, and conifer communities for nesting (R. Gutiérrez, personal communication). Johnsgard (1973) and Kessler (1990) characterized nesting cover as large shrubs and young trees in dense clusters. Nests are typically well concealed and situated beneath roots, brush, grass clumps, bank edges, or at the base of a dead shrub in patches of live shrubs (P. Heekin, personal communication). Miller (1950) reported a mean vegetational height of 0.5 m (1.6 ft) at nest sites. Nests may also be found next to rocks or logs. Some birds nest in their winter range and others move to higher ground, such as forest or farmland edges (Ormiston 1966). In Idaho, nests were located between 713 m and 1,426 m (2,340-4,680 ft) on slopes 60-110% (P. Heekin, personal communication). Nests were situated in relatively open stands of conifer/mountain shrub cover having a fairly dense understory.

Brood Rearing

In mid-summer, mountain quail broods move to the cool, moist bottoms of draws and canyons (Ormiston 1966). Such movements may be related to the availability of preferred foods within the daily cruising range of water (Ormiston 1966, Gutiérrez 1975). In Idaho, broods 2 to 3 weeks old were located in relatively open cover, often on or near game trails (P. Heekin, personal communication).

Winter

In late fall, mountain quail often migrate to lower elevation winter range (Bent 1963, Johnsgard 1973). They winter in brushy thickets, canyons, and along the borders of farms and woodlands (Yocom and Harris 1953) where mixed trees, shrubs, and herbs exist (Kessler 1990). Mountain quail remain below the snow-line, moving up or down in elevation depending on weather conditions (Ormiston 1966). In Idaho, the mean straight-line distance moved from nest site to winter range was 648 m (2,126 ft) (P. Heekin, personal communication).

Loafing and Roosting Cover

Loafing and roosting cover consists of dense vegetation approximately 2-3 m (5-6 ft) in height (Miller 1950). Mountain quail in west-central Idaho have been observed night roosting in hawthorn (*Crataegus* spp.) trees 3-4 m (10-13 ft) above ground level and loafing at the base of dead shrubs (P. Heekin, personal communication).

Escape Cover

Escape cover is typically 1.5-2 m (5-6.5 ft) high with fairly dense growth (Miller 1950). Where this cover type is not available, quail use slopes of 36% or more to escape (Johnsgard 1973). Trees, such as ponderosa pine (*Pinus ponderosa*), firs (*Abies* spp.), and oaks (*Quercus* spp.) may also be important.

Food

Mountain quail feed primarily on vegetable matter (Ormiston 1966, Rue 1973 in Heekin 1991); animal matter typically comprises <5% of the diet (J. Crawford, personal communication). Food species for mountain quail include lotus (*Lotus* spp.), smooth sumac (*Rhus glabra*), hackberry (*Celtis* spp.), serviceberry (*Amelanchier* spp.), grape (*Vitis* spp.), gooseberry (*Ribes* spp.), elderberry (*Sambucus* spp.), snowberry (*Symphoricarpos* spp.), manzanitas (*Arctostaphylos* spp.), nightshade (*Solanum* spp.), chickweed (*Stellaria* spp.), blue-eyed Mary (*Collinsia* spp.), hawthorn (*Crataegus* spp.), sweet clover (*Trifolium* spp.), thistle (*Cirsium* spp.), ragweed (*Ambrosia* spp.), teasel (*Dipsacus* spp.), scotchbroom, fringecup (*Lithophragma* spp.), composite seeds (*Madia* spp.), poison oak (*Rhus diversiloba*), geranium (*Geranium* spp.), and lupine (*Lupinus* spp.) (Yocom and Harris 1953, Ormiston 1966, Kessler 1990). Mast (tree seed) is eaten in abundance and includes the seeds of pines, Douglas fir (*Pseudotsuga menziesii*), and black locust (*Robinia pseudoacacia*). Acorns, legumes, tubers, roots, and weed seeds may also be consumed. Ormiston (1966) observed seeds of grasses, hawthorn, pines, sweet clover, thistles, ragweed, and teasel in the fall diet in Idaho. The winter diet is comprised of seeds of large annuals and perennials and fruits of woody species such as hawthorn, acorn meats, pine seeds, and greens (Ormiston 1966, Johnsgard 1973).

LIMITING FACTORS

An inadequate food supply caused by habitat loss throughout mountain quail range is considered a major limiting factor (Miller 1950; R. Gutiérrez, personal communication). The loss of winter habitat from dams and water impoundments, residential development, intensive agriculture, and the deterioration of wintering and breeding grounds as a result of overgrazing also limits mountain quail (Brennan 1990, P. Heekin, personal communication). Timber harvest does not appear to limit mountain quail if the cut site is allowed natural regrowth and invasion by brush species (R. Gutiérrez, personal communication). Excessive timber harvest [>200-400 ha (500-1,000 ac)] may negatively impact mountain quail (Leopold 1977; R. Gutiérrez, pers. comm.); however, this has not been proven (R. Gutiérrez, personal communication).

Water has been reported as a limiting factor (Rahm 1938, Ormiston 1966, Gutiérrez 1975, Miller and Stebbins 1964 in Gutiérrez 1975) and may be a problem in southeastern Washington (Kessler 1990). An increased water supply due to greater rainfall has resulted in higher breeding success in arid regions (Gutiérrez 1975, 1980; Brennan et al. 1987). The loss of riparian habitat in arid portions of mountain quail range is a serious threat to their stability (R. Gutiérrez, personal communication).

MANAGEMENT RECOMMENDATIONS

Habitat preservation is the key to mountain quail management in Washington (Kessler 1990). In eastern Washington, mountain quail persist in relatively isolated populations interconnected by corridors of riparian brush communities. These corridors serve as avenues for dispersal and movement between breeding and wintering habitat, as well as provide food and cover in close proximity to water sources (Brennan 1993). Removal of riparian brush communities should be avoided within the range of the mountain quail. The burning of decadent shrub fields should be avoided unless performed as a mosaic burn (P. Heekin, personal communication).

Herbicides that destroy brushy habitat should be avoided where management for mountain quail is a priority. Landowners are encouraged to use integrated pest management that targets specific pests or noxious weeds, pest population thresholds to determine when to use pesticides or herbicides, and crop rotation/diversity and beneficial insects to control pests (Stinson and Bromley 1991). Appendix A provides useful contacts to help assess the use of pesticides, herbicides, and their alternatives.

The interspersation of shrubby cover [covering 20-50% of the ground area (Miller 1950)] should be given major consideration. Ideal habitat consists of a variety of plants at various heights (Miller 1950). The creation of edges between cover types is of lesser importance in habitat management (Miller 1950, Gutiérrez 1975). Management should protect and/or provide a variety of micro-habitats within the mountain quail range including mixed evergreen-deciduous forests, openings, forest and meadow edges, chaparral slopes, shrub-steppe, and mixed forest-shrub areas. Tall, dense cover in close proximity to water should receive priority in management consideration.

Clearcutting extremely large blocks of coniferous and deciduous forests [>200 ha (500 ac)] should be avoided where mountain quail are known to exist. Land managers should be encouraged to replant logged areas with a variety of tree species or allow natural regeneration of sites (J. Crawford, personal communication; R. Gutiérrez, personal communication). Small harvested areas; selective harvest which maintains several mature, standing trees; harvest which retains slash and/or slash piles; and harvested sites which are not subject to broadcast burning have been beneficial to mountain quail in west-central Idaho (P. Heekin, personal communication). Every effort should be made to protect or provide water sources within mountain quail range, especially along riparian corridors. Livestock use of riparian corridors should be avoided as heavy grazing by sheep and cattle may be detrimental to mountain quail habitat (Gutiérrez 1975). Where water is lacking, watering devices should be installed (Miller 1950). Water devices should be placed in or near heavy cover to reduce predation (P. Heekin, personal communication).

Public education programs targeting habitat removal and water diversion issues associated with residential development are desirable where mountain quail management is priority (P. Heekin, personal communication). Furthermore, mountain quail are often attracted to and concentrate at bird feeders during the winter months. The concentration of birds at these sites increases the threat of predation by both natural and introduced predators. People that maintain bird feeders should be discouraged from placing feeders in open areas which are highly visible to predators (P. Heekin, personal communication).

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KEY POINTS

Habitat Requirements

- Mountain quail are associated with mixed evergreen-deciduous forests; regenerating clearcuts, selective cuts, and seed-tree cuts; forest and meadow edges; chaparral slopes; shrub-steppe; and mixed forest/shrub areas.
- Mountain quail require tall, dense cover over 20-50% of the area.
- A source of free-flowing water such as that found in riparian zones is critical to mountain quail occupying arid regions.
- Mountain quail nest in brush, shrubs, hardwood, and conifer communities.
- Loafing and roosting cover consists of dense vegetation approximately 2-3 m (5-6 ft) in height.
- Mountain quail winter in brushy thickets, along canyons, and about farms and woodland borders.
- Mountain quail feed on fruits, mast, acorns, legumes, tubers, roots, and seeds of grasses, weeds, flowering plants, and insects.

Management Recommendations

- Tall, dense cover (covering 20-50% of the ground area) in close proximity to water sources should be retained in areas where mountain quail management is a priority.
- Protect riparian brush communities within the range of the mountain quail.
- Encourage the use of integrated pest management within the mountain quail primary management zone. Refer to Appendix A for contacts useful when assessing pesticides, herbicides, and their alternatives.
- The burning of decadent shrub fields should be avoided unless performed as a mosaic burn.
- Public education should be encouraged where managing for mountain quail is a priority, and should target habitat removal and water diversion issues associated with residential development. The avoidance of placing bird feeders in open areas highly visible to predators should also be addressed.
- Minimize livestock use of riparian habitat.
- Protect or provide a variety of micro-habitats.
- Avoid clearcutting large areas of coniferous and deciduous forests (>500 ac).
- Encourage the planting of multiple tree and shrub species and/or allowing natural regeneration in areas subject to timber harvest.
- Install watering devices where water is lacking in or near dense cover.